CHAPTER 14 INSTRUMENTS

Copying instrumental parts requires that a copyist know the following:

clefs

keys and transpositions of instruments

written ranges

sounding ranges

While most instruments use a single clef, there are instruments that use more than one clef. For some instruments, music is written with pitches differing from actual sound; therefore, their parts must be transposed. Wind instrument ranges are determined as much by the instrumentalist's ability as by the instrument itself. Extreme ranges (particularly in upper registers) cannot be stated definitely; only minimum ranges for the qualified instrumentalist are presented. The sounding ranges for transposing instruments should be clearly visualized when copying from concert pitches.

Although a complete list of instrumental classification would be far longer, the most likely instruments to be encountered are:

woodwinds

keyboard

brasswinds

rhythm section strings

percussion

WOODWINDS

Woodwinds may be divided into transverse, double reed, and single reed woodwinds. Single reed woodwinds may be further divided into clarinets and saxophones. When a woodwind player plays written C on the instrument, the name of the instrument sounds: for example, B^{\flat} instruments sound B^{\flat} , and E^{\flat} instruments sound E^{\flat} . The interval between the written and sounded

pitches determines its transposition. Transposed woodwind parts allow the instrumentalist to use the same fingerings for more than one instrument. The following list gives:

Name of the instrument- Clef(s) normally used

Transposition relationship

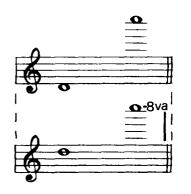
(Remarks about individual instrument)

Written and sounding range

TRANSVERSE WOODWINDS

C Piccolo - Treble Clef.

Sounds an 8ve higher than written. Written an 8ve lower than it sounds.



written d¹ to c⁴

 $\begin{array}{c} \text{sounds} \\ \text{d}^2 \text{to c} 5 \end{array}$

Flute (C) - Treble Clef.

Sounds as written.

(Some flutes have a low B extension).



written & sounds c1 to c4

DOUBLE REED INSTRUMENTS

Oboe (C) - Treble Clef.

Sounds as written.

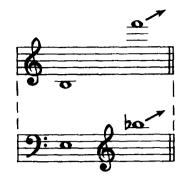
(Some oboes do not have low Bb key).



written & sounds by to f³

F English Horn - Treble Clef.

Sounds a P5th lower than written. Written a P5th higher than it sounds.



written b to f3

sounds e to b^2

Bassoon (C) - Bass or Tenor Clef.

Sounds as written.



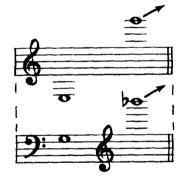
written & sounds BBb to bb1

SINGLE REED INSTRUMENTS

CLARINETS

Eb Clarinet - Treble Clef.

Sounds a min 3rd higher than written. Written a min 3rd lower than it sounds.

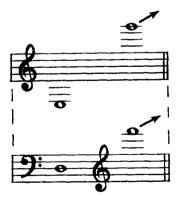


written e to g3

sounds g to bb3

Bb Clarinet - Treble Clef.

Sounds a Maj 2nd lower than written. Written a Maj 2nd higher than it sounds.

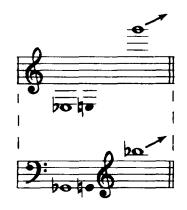


written e to g3

sounds d to f3

Eb Alto Clarinet - Treble Clef.

Sounds a Maj 6th lower than written. Written a Maj 6th higher than it sounds. (Most alto clarinets have a low E^{b} key).



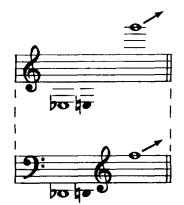
written eb to g3

sounds
Gb to bb2

B) Bass Clarinet

Sounds a Maj 9th lower than written. Written a Maj 9th higher than it sounds.

(Most bass clarinets have a low $E_{\mathfrak{b}}$ key).



written eb to g3

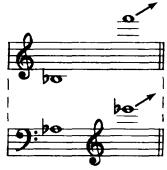
sounds

Do to f2

SAXOPHONES

Bb Soprano Saxophone - Treble Clef.

Sounds a Maj 2nd lower than written. Written Maj 2nd higher than it sounds.

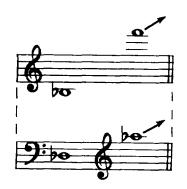


written by to f3

sounds ab to eb3

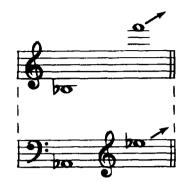
Eb Alto Saxophone - Treble Clef.

Sounds a Maj 6th lower than written. Written a Maj 6th higher than it sounds.



written by to f3

sounds db to ab2



written to f3

sounds Ab to eb2

Bb Tenor Saxophone - Treble Clef.

Sounds a Maj 9th lower than written. Written a Maj 9th higher than it sounds.



Sounds a Maj 13th lower than written. Written a Maj 13th higher than it sounds.

(Some baritone saxophones do not have a low A key).



written by to f3

sounds
Do to ab1

TRANSVERSE WOODWINDS

(sounding ranges)

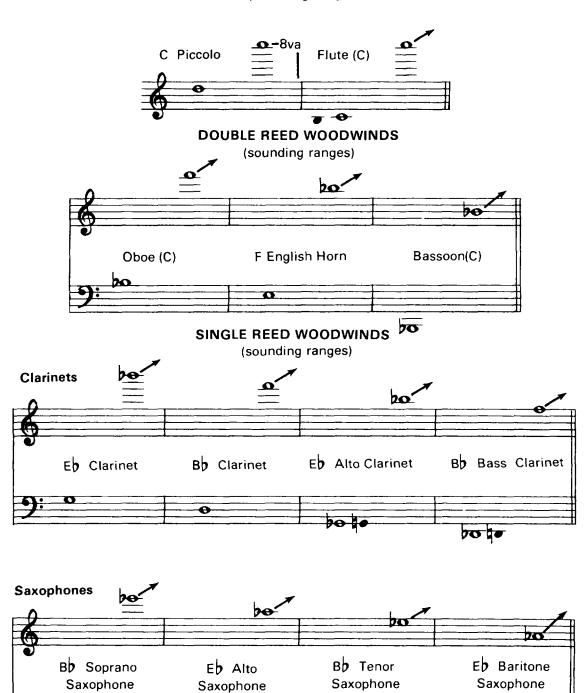


Figure 14.1: Woodwind Comparative Range Chart.

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BRASSWINDS

Most brasswinds use three or more valves in combination to produce more than one overtone series, allowing chromatic pitches. Trombones use slides for the same purpose.

Brasswinds may be grouped into treble clef brass and bass clef brass. When a treble clef brasswind player plays written C on the instrument, the pitch name of the instrument sounds. The interval between the written and sounded pitches of an instrument determines its transposition. Bass clef brasswinds sound as written. The pitch name of a bass clef brasswind is its open or first position sounding overtone series.

Brasswinds are constructed with various ratios of cylindrical and conical bores. Cylindrical bore brasswinds are more cylindrical than conical; conical bore brasswinds are more conical than cylindrical. The ratio of cylindrical to conical tubing affects the timbre of the instrument. The following list gives:

Name of the instrument (open/first position sounding series)

Transposition relationships

(Remarks about individual instrument)

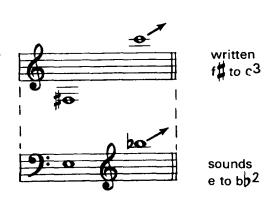
Written and sounding range

TREBLE CLEF BRASS

Bb Trumpet, Cornet, and Flugelhorn.

Sounds a Maj 2nd lower than written. Written a Maj 2nd higher than it sounds.

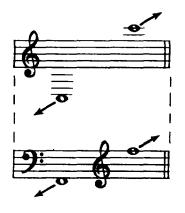
Trumpet - Cylindrical Bore (3 valves). Cornet - Conical Bore (3 valves). Flugelhorn - Conical Bore (3 valves).



Horn F/Bb (called Double Horn).

Sounds a P5th lower than written. Written a P5th higher than it sounds.

Conical Bore (3 valves).



written c to c3

sounds F to f²

Bb Baritone Horn.

Sounds a Maj 9th lower than written. Written a Maj 9th higher than it sounds.

Conical Bore (3 valves).



written fill to c3

sounds E to bb1

BASS CLEF BRASS

Bo Baritone Horn. 9:

Sounds as written (non-transposing).

Conical Bore (3 valves).

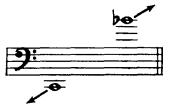


E to b 1

Bb Euphonium.

Sounds as written (non-transposing).

Conical Bore (4 valves).



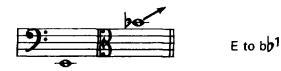
C to bb1

Bb Tenor Trombone.

Sound as written (non-transposing).

(Makes use of tenor and alto clefs).

Cylindrical Bore (Slide).

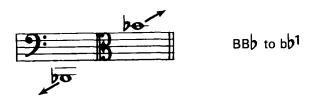


Bb Tenor Trombone with F Attachment.

Sounds as written (non-transposing).

(Makes use of tenor and alto clefs).

Cylindrical Bore (Slide).

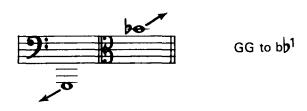


By /F/D Bass Trombone.

Sounds as written (non-transposing).

(Makes use of tenor and alto clefs). (high extreme of instrument infrequently used).

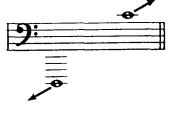
Cylindrical Bore (slide).



C Tuba.

Sounds as written (non-transposing).

Conical Bore (4 valves).



DD to c¹

BBb Sousaphone.

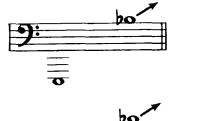
Sounds as written (non-transposing).

Conical Bore (3 valves).



Sounds as written (non-transposing).

Conical Bore (4 valves).



CC to bb

EE to bb



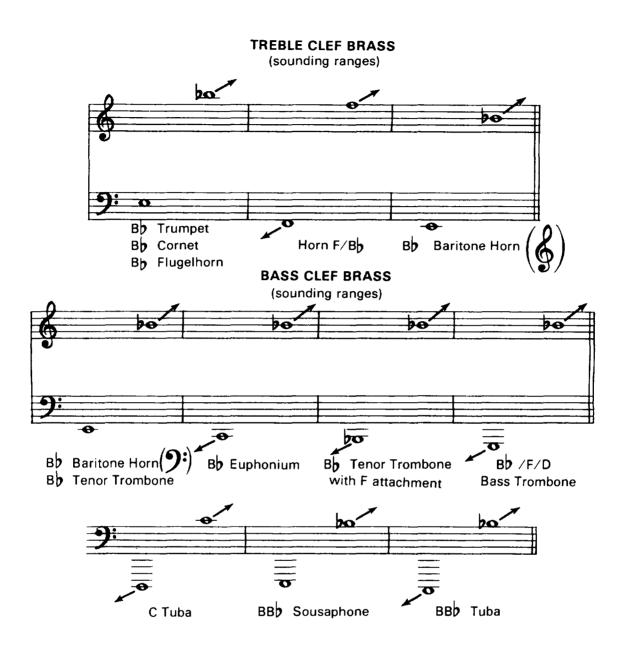


Figure 14.2: Brasswind Comparative Range Chart.

PERCUSSION

The percussion instruments may be divided into *indefinite pitch* and *definite pitch* percussion. Due to the large number of instruments in the indefinite pitch grouping, placement in notation is very irregular and will vary greatly. Definite pitch drums (timpani) are notated in bass clef. Mallet percussion (keyboard percussion) instruments are normally notated in treble clef.

INDEFINITE PITCH PERCUSSION

The following list of indefinite pitch percussion gives:

Name of the instrument

symbol

Placement in notation

Tools used for performance

(Remarks about individual instrument)

Snare Drum.

3rd space bass clef, Rhythm Line.

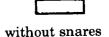
Sticks, mallets, brushes.





with snares







1st space bass clef, Rhythm Line.

Sticks, mallets.





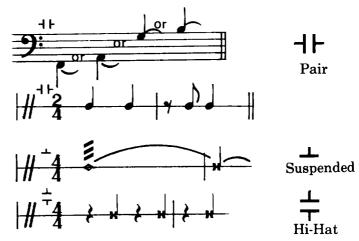
(May be played vertically or horizontally).

Cymbal(s).

Below, 1st space, 4th space, or above bass clef Rhythm Line.

Hands (in pairs), sticks, brushes, mallets, etc.

(Sometimes notated with diamond or x head notes).





3rd space, 4th space, or above bass clef, Rhythm Line.

Triangle beater, stick.

or or or





Tambourine.

3rd space, 4th space, or above bass clef Rhythm Line.

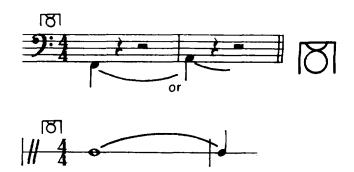
Hands, sticks, mallets, thumb.



Tam-tam (Gong).

Below or 1st space bass clef, Rhythm Line.

Gong beater



DEFINITE PITCH PERCUSSION

The following list of definite pitch percussion gives:

Name of the instrument (symbol) - clef

Transposition

Tools used for performance

(Remarks about individual instrument).

Written range

(Ranges of instruments may vary depending on the manufacturer.)

Timpani - Bass Clef.

Sounds as written.

Mallets (felt, wool, wood).

23 inch Timpano (I)

26 inch Timpano (II)

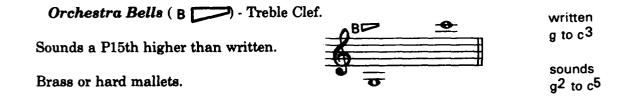
Bb to f

111

29 inch Timpano (III)

To C

Timpani are fully chromatic and have a minimum range of a P5th; the upper range of a timpano depends on its condition.





Sounds a P15th higher than written.

Hard plastic mallets.



written a to a2

sounds a2 to a4

Tubular Bells (Chimes) (Treble Clef.

Sounds as written.

Chime hammer of wood or rawhide.

(Some instruments do not extend beyond f2)

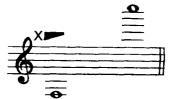


1 to a2

Xylophone (X) - Treble Clef.

Sounds a P8ve higher than written.

Wood, rubber, or plastic mallets.



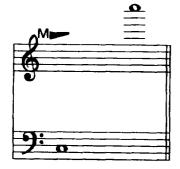
written f to c⁴

sounds f¹ to c⁵

Marimba (M) - Treble and Bass Clefs.

Sounds as written.

Rubber, wood, plastic, yarn, or cord mallets.



c to c4

Vibraphone (V) - Treble Clef.

Sounds as written.

Yarn or cord mallets.



f to f3

KEYBOARD

With the exception of the standard piano, keyboard ranges vary widely depending on the manufacturer. Keyboard instruments make use of notation in treble and bass clefs. The following list of keyboard instruments gives:

Name of the instrument

Transposition

Method of sound production

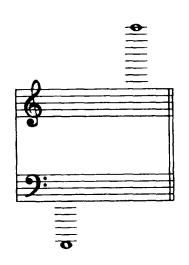
(Remarks about individual instrument)

Written range

Piano (Pianoforte).

Sounds as written.

Struck strings.



AAA to c5

Electric Piano.

Sounds as written.

(Method of sound production varies depending on the manufacturer)

Range Varies Widely

Celeste.

Sounds a P8ve higher than written.

Struck metal bars.



written c to c3 sounds c1 to c4

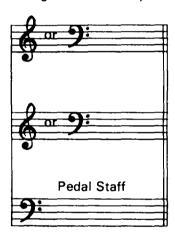
Organ.

Sounds as written

Compressed air through pipes or electronically generated.

The organ uses an extra staff for the pedal register as needed.

Range Varies Widely



Synthesizer.

Unlimited transposition.

Electronically generated.

Range and Layout
Depend on
Manufacturer

RHYTHM SECTION STRINGS

Rhythm section strings include guitar, bass guitar, and string bass. Normally, they are used in a rhythm section with piano and drums. All three instruments sound a perfect octave lower than written. The following list of rhythm section string instruments gives:

Name of the instrument - Clef normally used

Transposition

Remarks about individual instrument

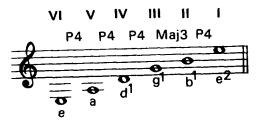
Open strings

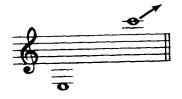
written range

Guitar - Treble Clef.

Sounds a P8ve lower than written

Tuned in P4ths except for II to III (Maj 3rd).



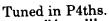


written e to c³ sounds

E to c²

Bass Guitar - Bass Clef.

Sounds a P8ve lower than written







written E to eb¹

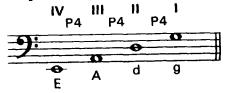
sounds EE to eb

String Bass - Bass Clef.

Sounds a P8ve lower than written.

Tuned in P4ths.

The instument may be bowed (arco) or plucked (pizzacato)





written E to eb1

sounds EE to eb

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